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General Headquarters, Washington, D. C.

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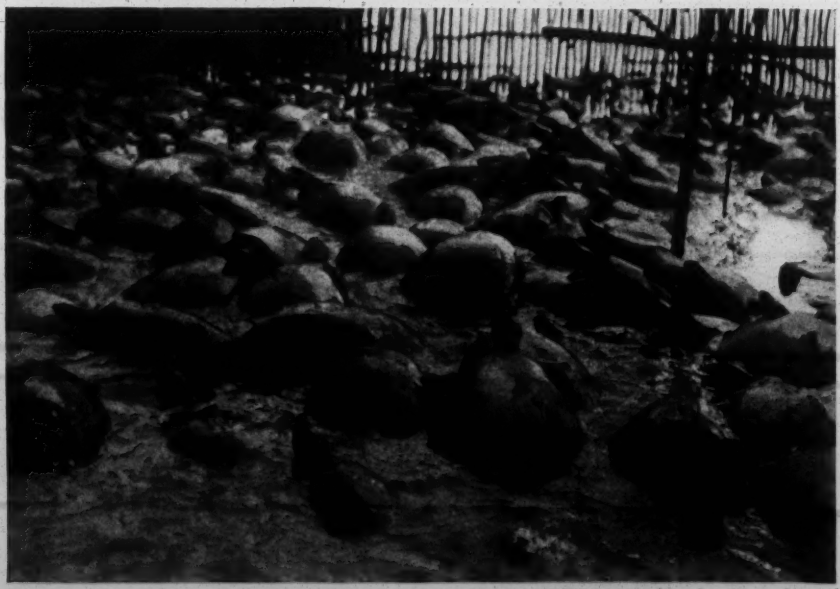

© *Photograph from Dr. W. L. Schurz*

A SWARMING TURTLE PEN ON THE RIO BRANCO

Despite the wholesale destruction of their eggs, turtles still abound on some of the rivers in Amazonia, and "their pursuit constitutes one of the most important industries in certain districts." After being shot in the neck with an arrow to which a cord is attached, they are herded into pens to await shipment to Manaos or Para. From the flesh is prepared a number of tasty dishes; the eggs furnish turtle oil and turtle butter (See Bulletin No. 1).

HOW TEACHERS MAY OBTAIN THE BULLETINS

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South America a Continent of Massive Natural Wonders

POLITICAL news brings South American countries into the headlines. Financial writers comment on our investments in South American countries. But in the background of our relations with our southern neighbors are debts we owe South America—intangible debts for enduring contributions to our commercial and economic life.

In Peru originated the potato, the world's greatest single crop; Chile contributes the guano fertilizer which rejuvenates the soil of many lands; the pampas of Argentina bestow meats and wool upon millions outside her borders; Brazil helped make possible the automobile by disclosing the use of rubber—to mention only a few of the important economic services of the South American continent.

How Resources Complement Each Other's Needs

The United States and South American countries have always manifested their friendship by their trade. In one normal year Argentina bought three-eighths of her imports from our country; Brazil spent in the United States approximately one-half of her expenditure for imports, and Chile gave the United States practically the same proportion of her foreign purchases. Colombia was an equally good customer in proportion to her total importations, while Peru gave the United States nearly two-thirds of her total foreign orders. More than two-thirds of Venezuela's foreign business was done with American houses, and, in Ecuador, the proportion was 45 per cent.

In our turn we bought more than half of the exports of Chile, Colombia, Peru, and Venezuela, nearly half of those of Brazil, and nearly a third of those of Argentina.

To the geographer these figures tell far more than a profitable business relationship—they betoken a mutual dependency based on mutual needs. It is a happy geographic fact that our two continents, thrown into close proximity, need each other and, in so many ways, complement each other.

Physical Geography Unique

The physical geography of South America is fascinating. It is distinguished by the absence of clearly defined watersheds between its great river basins. From the Orinoco delta to the Rio de la Plata estuary there is almost a continuous overlapping of these basins.

In southern Venezuela, where that country thrusts a political peninsula into northern Brazil, below the town of Esmeralda, the waters of the upper Orinoco suddenly decide to part company, some of them reaching the Amazon and the sea through the Brazo Casiquiare and the others forcing their way to the lower Orinoco over the rapids of the eroded mountain barriers at Maipures and Atures.

Although the communications between the Amazon and the Rio de la Plata basins are not so marked as those between the Amazon and the Orinoco basins, there are numerous places where the flip of a bird's wing, the direction of the wind, the abundance of local rains, the formation of a sand-bar, or the slip of a bit of land may determine the destiny of a drop of water—whether it shall flow past Para or Buenos Aires.

Nature has been prodigal of her blessings to South America—blessings which, in some instances, are just being revealed.

A rich asset of our eastern seaboard of North America has been its rugged, indented coast line, which affords sheltering harbors from Maine to Florida.

THE OCCUPANTS OF THE COMMUNAL HUT ON THE PARIMA

A visiting aviator is seen in the center of the group, trading clothes and knives for bows and arrows and blowguns, an example of the way all commerce began. Note the way in which the arms of the man and woman at the left are bound above the elbow. With some Indians leading the way, and others falling in behind, the airmen had followed a faint and narrow trail through the dense forest. Because of the white men's greater height, they had to bend continually to get under vines and limbs, but the Indians, of shorter stature, slipped along very easily (See Bulletin No. 1).

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Exploring the Haunts of the Eel

ALL the eels in the world have two convention headquarters where they meet annually.

Discovery recently of a place in the Indian Ocean to which millions of Asian, African and Australian eels travel yearly recalls that the rendezvous of American and European eels was located, in 1920, near Bermuda.

Science knows much more to-day about the eel than it did some years ago. The missing chapters in the eel's life history have been supplied through modern deep-sea investigation rather than in the study of fresh or coastal waters, where eels are more in evidence.

Spawns Far Out at Sea

Unlike salmon, shad, and other fishes which enter fresh waters to spawn, the eel descends streams at maturity to spawn far at sea. The young eels—3 inches or so in length, called elvers—that enter fresh waters in the spring in large numbers, and are continually working upstream, have always been known, but the stages of growth between the egg and the elver were not.

These stages in which the baby eel is less than 3 inches in length are of comparatively recent discovery. We here find it a thin, flattened creature, so transparent that ordinary print may be clearly read through its body. When first described in this stage it was called *leptocephalus* and was not known to be the common eel.

These transparent larval eels, found at sea in the winter months, grow rapidly, and by the end of the first year are more than 2 inches long, when they begin to transform. A little later they begin to appear in fresh-water streams as elvers or young eels about 3 inches long.

Investigations by the Danish vessel *Dana* in 1920 and 1921 have shown that the early larval stages of both the American and the European eel are found only in the western Atlantic, at depths of 600 to 900 feet. The former spawns to the south and southwest of the Bermuda Islands, the latter to the south and southeast.

American Eels Make Earlier Debut

While the American eel begins to enter fresh water at the age of a year, the European species remains three years in the larval stages before it appears as the elver in European streams. The latter, like the American eel, goes far inland, even passing within the borders of Switzerland.

Females with ripe eggs are unknown, the millions of undeveloped eggs carried by each female not developing while the eels linger in fresh or coastal waters.

The eels found far inland are always females and remain in fresh water for several years. It is only when tending toward reproductive maturity that they seek the sea. Male eels remain in tidal waters and are smaller and less in evidence. Like females, they do not reach breeding maturity until they have passed to sea.

The great bulk of the eel catch everywhere consists of females. It is said that all the eels captured in the great Quebec fishery are females moving downstream.

The annual catch of eels for market along the Atlantic coast from Maine to Florida normally exceeds 3,000,000 pounds and is worth some $250,000.

A few years ago three barges, each more than 100 feet long and 12 feet wide, arrived at New York from Quebec with 165,000 pounds of live eels. They were

South America's coast line is more regular; but she has what now are proving an even greater boon, navigable rivers of enormous length—nature-made canals which offer ready transportation to regions of some of her richest products.

Our Mississippi and its tributaries have 17,000 miles of navigable waters, the major portion of them naturally shallow. The Amazon and its tributaries have twice as many miles, and several times as many miles capable of accommodating ocean-going steamers, which, for example, ascend 2,300 miles to Iquitos, while vessels of 14-foot draft can ascend nearly 500 miles beyond that point.

South America takes that for granted; but we of the United States marvel when we realize that it is as though one could travel on a ship of 14-foot draft from New York direct to Salt Lake City by way of Chicago and Cheyenne. A glance at a map of South America reveals that South America has the finest potential system of inland waterways in the world.

Vast Resources Are Untapped

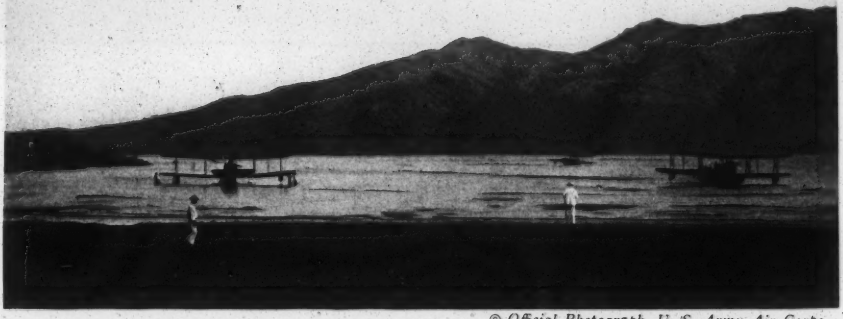
The map also reveals the wonder tale of South America's future—her future of commercial importance, because she holds so much wealth in natural resources which the world needs.

There are delineated the vast extent of the rubber forests of the Amazon basin; the regions whence Argentina, Paraguay, Uruguay, Colombia, and Venezuela draw their valuable exports of cattle, hides, mutton, and wool; the nitrate lands of Chile; the rich coffee, sugar, and cacao plantations of Brazil, the Guianas, Venezuela, Ecuador and Colombia; and the silver, copper, gold, iron and tin deposits of various countries.

The Andes are the Alps of South America—only on a tremendously large scale. Everything in South America seems scaled large.

The continent has twice the area of Europe, yet its people number only about two-thirds the combined populations of France and Italy.

So towering and so extensive are the Andes Mountains that if all the highlands were plowed down and all the lowlands were filled up, the continent would be a plateau 1,312 feet above sea level, and 820 feet of this would be represented by the material which constitutes the Andes.



© *Official Photograph, U. S. Army Air Corps*

AMAPALA, THE ONLY PORT OF HONDURAS ON THE PACIFIC

When these American aviators arrived, a native brass band was waiting on the beach to serenade them. Here is a perfectly sheltered roadstead, through which passes much of the seaborne trade of Honduras, Nicaragua, and Salvador (See Bulletin No. 4).

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Why New Map of Europe Requires 46 Languages

THE National Geographic Society recently issued a new map of Europe in 46 languages.

The 46 languages were required to give the precise official spellings of the place names in countries where the places exist.

In the years following the Armistice, one of the notable changes that has taken place in Europe has been the development and intensification of national feeling with respect to geographical place names.

Do You Recognize Warszawa or Tallinn?

Warsaw is Warszawa to the Poles; pre-war Reval has been replaced by Tallinn in Estonia; St. Petersburg was transformed to Petrograd but now is Leningrad. So with hundreds of the names which, like the places they represent, have endured for centuries.

One practical reason for The Society's preparation of the new map is the increasing difficulty European travelers find in identifying the names of towns as they are spelled on time-tables, or known to ticket agents—spellings that often are at wide variance with the names we have been using.

The traveler soon finds that Brussels, in Belgium, is Bruxelles; that Copenhagen is Köbenhavn; that Vienna is Wien and Constantinople is Istanbul.

Courtesy Requires Correct Mail Addresses

Another reason is the growing correspondence of American firms and individuals with Europeans. Dr. Gilbert Grosvenor, president of the National Geographic Society, in summarizing the map changes, wrote:

"Every person expects others to spell his or her name as he or she spells it, wherever he or she may happen to be. Courtesy and custom will soon require that when we write to our friends in Europe we spell the names of their cities as these names are spelled at home.

"The National Geographic Society has 50,000 members in Europe. Communications coming to these members from the National Geographic Society addressed to Rome (Roma), Venice (Venezia), etc., would probably seem to them as illiterate as we regard letters coming to us addressed to Nuova York, Filadelfia, Salzseestadt (Salt Lake City), or Waszyngton, which is the manner the names of a few of our cities are spelled in some European gazetteers.

Took Three Years to Assemble Data

"Foreseeing the ultimate desirability of according to each nation recognition of its own approved geographic names within its boundaries, the National Geographic Society three years ago began to assemble the data for and to construct the present New Map of Europe.

"Many of the names on our map will have an unfamiliar appearance to the average user, and yet these are the place names to which letters should be addressed; they are the names which the traveler abroad will find on his time-tables of the various countries; and they are the names which will greet his eye as his train or boat or airplane passes station, dock, or landing field.

"In compiling material for this map, the National Geographic Society has had courteous cooperation from many sources. Without exception, embassy and legation officials of every European country represented in the National Capital

towed by way of the St. Lawrence River, Lake Champlain, and Hudson River and were thirteen days in transit. The barges are virtually well-boats, or live cars, the bottoms consisting of heavy slats, with narrow spaces between to provide abundant circulation of water.

Large as is the catch of eels in America, it is vastly greater in Europe.

Eels enter all American streams from the St. Lawrence River to the Gulf of Mexico. It is only the young eels that move upstream. Adults move downstream and do not return. Both males and females die at sea after the first and only breeding season in their lives. The eel is very prolific, each female producing from 5,000,000 to 10,000,000 eggs.

Bulletin No. 2, November 10, 1930.

© *Photograph by Paul Griswold Howes*

A LARVAL WATER-TIGER FEEDING ON A YOUNG EEL

The insect fastened its jaws in the flesh of the eel and swam with great effort to a higher perch in the aquarium. Here it sucked the body juices of the victim until it became white. The water-tigers are among the most ferocious of all the insects. Biology students may find life histories of fishes in "The Book of Fishes," by John Oliver La Gorce and other authorities, published by The National Geographic Society; containing 92 subjects in full color, 134 engravings, 243 pages. This volume may be consulted in your school library or public library.

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Amapala, Honduras: Brisk Port in Land of Strange Animals

A RARE type of "four-eyed" fish, a moth with wings that measure 9 inches from tip to tip, and many other natural history specimens are reported brought back by an expedition recently returned from Honduras.

Much of Honduras still affords a rich field for geographic exploration, but one of its cities, Amapala, recently has entered into the list of new world ports—ports for aerial travel. It long has been the major Pacific seaport of the country.

Live Calmly on the Breastworks of a Volcano

The 4,000 residents of Amapala live dangerously. They pursue their hazarduous course of life like brave men and brave women, with calmness and content. They live on the breastworks of a volcano. They live, furthermore, where there is no chance of running away, because Amapala port is on Tigre Island, 16 miles from the mainland. Old Coseguina rears its flattened head above the United States Naval Station a short distance away, just to warn Amapala of its presence. Coseguina blew its head off in 1838 and turned the whole landscape from green to gray with pumice dust. Natives still date events so many years "since the Great Darkness." Amapala's own personal peak, 4,000 feet high, has been dormant for many years but one can never tell about a volcano in Honduras.

If, on a map of North America, you will put your finger at Chicago, and then run down the longitude line across the Gulf of Mexico, through Yucatan, through Honduras, you will come out on the Pacific Ocean at the Gulf of Fonseca. Like San Francisco Bay, the Gulf thrusts fingers of blue water deep into the coast. Three nations, San Salvador, Honduras and Nicaragua, own shore acres on this important bay—important because it is probably the most strategic anchorage between San Diego, California, and Panama City that is protected from the fury of the Pacific. In the midst of the Gulf rises Tigre Island. On the north side of the island, within an arc of shore terminated by two promontories, is Amapala, haven for the flyers and chief Pacific port for Honduras.

Layers of Time

Amapala, like so many towns between Capricorn and Cancer, reminds one of an old billboard. Many lives of men of many nations have been plastered on Amapala, layer upon layer.

Who would not like to know more of Don Carlos Dardano, to whom Amapala owes its present place in the world? Don Carlos was not a descendant of the Conquistadores. He was an enterprising Italian merchant. His urging prompted Honduras to declare Amapala a free port. His was the plan to offer a certain quantity of land to every settler coming to the island. Don Carlos worked the bellows that inflated the fishing village to a port rivaling Salvador's nearby port, La Union. But at the time the English captured the place the Italian merchant was weak enough to accept office as "Superintendent of the Island of Tigre." Of course, when Honduras regained supremacy the father of Amapala fled to exile.

The visitor to Amapala would like to know more than he sees of German penetration in Honduras before the World War. Their warehouses are on the waterfront. Americans have done their best to keep the trade of Honduras since 1918.

have assisted The Society in obtaining their most recent authoritative national maps.

"In addition, geographical societies abroad have been consulted and have given valuable suggestions as to the choice of place names to be shown in congested areas.

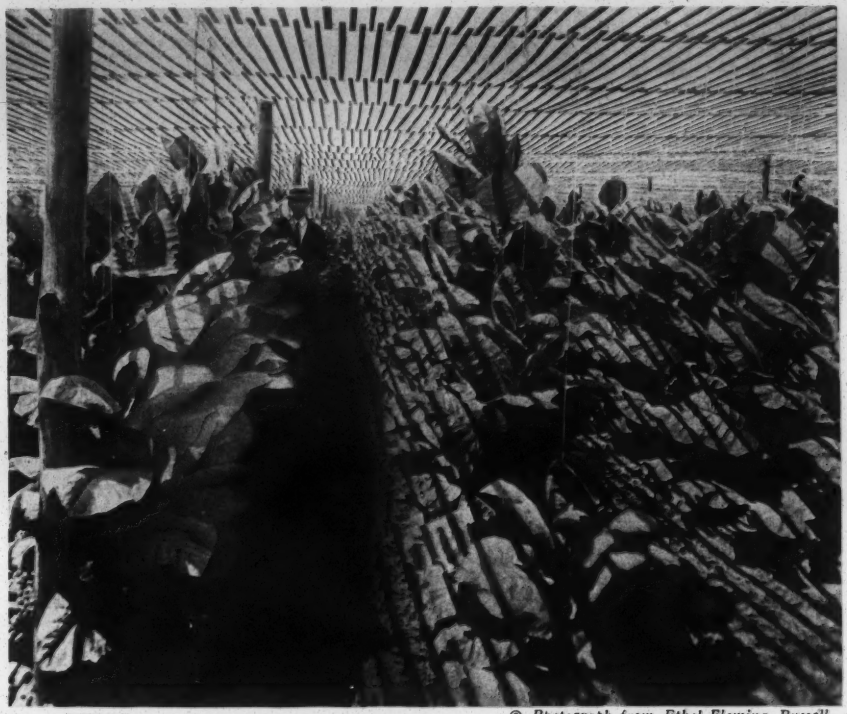
War Brought New Language as Well as New Countries

"After the World War the official German, Austro-Hungarian, and Russian languages were banished from the new-born States of Central Europe, with the result that Estonian, Lettish, Lithuanian, Polish, Czechoslovak, and Serbo-Croatian came into their own as official languages.

"The Turkish portion of the map had been completed when news came from The Society's European staff representative in Constantinople that the new alphabet would be adopted. This entire section of the map had to be relettered."

Bulletin No. 3, November 10, 1930.

Note: The National Geographic Society's New Map of Europe, 34 x 39 inches, in six colors, is drawn on the convenient scale of 1 to 6,000,000 (94.7 miles to the inch), and has more than 8,000 place names. The map went to members with their December, 1929, *National Geographic Magazine*, and therefore may be consulted in the school library or your public library. Teachers specializing in European geography may obtain separate copies from The Society's Washington, D. C., headquarters by remitting $1.50 for the Map with Index, paper; or $2 for the Map in linen, with Index. The separate Index of 10,000 place names enables easy identification of places, rivers, bodies of water, cities and towns by all official names, old and new. The Index alone may be purchased for 50 cents.



© Photograph from Ethel Fleming Russell

A DECATUR COUNTY PLANTER IN HIS SHADE-TOBACCO FIELD

The shade for this high-grade tobacco crop is constructed of narrow wooden slats; the usual type, however, is cheesecloth. In addition to the insect pests, the tobacco planter constantly faces the menace of hailstorms, which not only rip his shade to pieces but riddle the tobacco leaves, making them worthless as cigar wrappers. The plants attain a height of from 7 to 10 feet, and when full grown frequently thrust their top leaves between the slats (See Bulletin No. 5).

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Exports That Made America

COTTON, king of American exports for more than a century, kept its crown as United States exports crossed the $5,000,000,000 mark during 1929 for the first time in a normal year.

Cotton was the first export collected by permanent European settlers in the New World 438 years ago and continues to be the chief export.

But cotton's reign is threatened, perhaps doomed, by machinery. The billion dollar cotton export of 1925 has been cut by one-fourth, while the value of machinery shipped abroad has doubled. If machinery passes cotton in 1930, then Volume One of the story of America's foreign trade will close. United States, for three centuries the reservoir of raw materials, will become definitely United States, manufacturer to the world. Already the total value of manufactured goods plus semi-manufactured goods is three-fifths of the United States' export trade.

There have only been two real kings of American exports—cotton and tobacco. Tobacco held first place for 150 years; cotton has ruled the second century and a half. Only for two short periods, immediately after the Revolutionary War and during the Civil War, did flour and wheat take the lead.

Cotton and Parrots for Columbus

Christopher Columbus expected to gather gold and spices from the Indies, but the natives swimming and paddling out to his ships presented him with balls of cotton and parrots.

He came home without gold but promised Ferdinand and Isabella to get some on the next voyage to the Indies which, he declared, would prove valuable also as a source of drugs, cotton, mastic, aloes and rhubarb. Mastic is a resin. The island of Chios in the Aegean Sea has maintained its 2,000-year-old command of the mastic trade despite Columbus' prophecy. Pistacio nuts come from a tree of the same family.

Then, Codfish and Sassafras

Codfish drew the first English and French sailors to the North American coast. The first land product exported to England was probably sassafras. Captain Martin Pring came to New England seventeen years before the landing of the Pilgrims and loaded two ships with sassafras. England's great shipping companies bought sassafras to make a tea which was served to sailors in the belief it kept them in good health.

When Captain Newport sailed back to England after leaving Captain John Smith and his party to establish Jamestown in 1607 he carried one small gold nugget and a cargo of pyrite which he thought to be gold, but which turned out to be "fool's gold." Still he was not cured. Much to Captain John Smith's disgust, Captain Newport carried back on his next voyage a second cargo of "precious" dirt.

Smith sent back a load of cedar logs so that the company would have something to show for its expenditures, and followed the logs with the first manufactured product exported from the United States, clapboards. These were not clapboards for exteriors of frame houses as the United States knows them, but panels for wainscoting the rooms of fine English houses. A little later the Spanish Ambassador wrote to his king that Britain was receiving a few trifles from Virginia: "wood for wainscot, soap ashes, pitch, tarre, and kindes of herbs for dieng."

Virginia was asserted to be the equal "of Tyre for dyes, Basan for woods,

Annals of Famous Pirates

A fort crowning a small, precipitous peak is introduction to the story of a fugitive President of Honduras, who with a handful of men, held the army of his political opponents at bay for six weeks. Deeper in the annals of Amapala are stories of Dampier, pirate for booty, and Drake, pirate for Queen Elizabeth of England, who made Tigre their headquarters.

"Via Amapala" is the routing of most shoes, most mining machinery, most barbed wire, manufactured quinine, mosquito netting and automobiles, on their way from the United States to Tegucigalpa, capital, and other cities of Honduras. Within the last few years a wharf has been built to bridge the gap between steamers and Amapala's shore. Once on shore it is required of both goods and passengers to leave on board the lighters at midnight for the mainland. This enables the pilot to take advantage of the tide which helps push his boat 30 miles up the Estero Real to San Lorenzo.

The national highway to Tegucigalpa starts at San Lorenzo and goes over the hills to the capital cradled in the high interior plateau. An ambitious president constructed a splendid macadam highway on this road. Sometimes it is a good road. Everything depends on the president. Good or bad, it is the Honduran road of imports and exports and a stiff endurance test for American automobiles.

Bulletin No. 4, November 10, 1930.

© *J. F. Gandara*

CRUISING THROUGH COTTON ON THE AFTERDECK OF A BURRO

Without her numerous Mexican population, Texas could not pick her cotton, irrigate her fields, build her roads, or work her sheep and cattle. Because Texas-born Mexicans—sometimes known locally as "Tex-Mex"—are officially listed merely as whites, no one knows just how many of that race live here (See Bulletin No. 5).

Persia for oils, Arabia for spices, Spain for silks, Narsis for shipping, Bonoma for fruit, and by tillage, Babylon for corn." Yet a small crop of tobacco grown and harvested by John Rolfe, colonist husband of Pocahontas, and sent to England in 1613 did more than any other export to assure the success of the Jamestown experiment.

A Comparison

Exports of the colonial period and of to-day in the order of their importance are:

Colonial Period	*1929*
Tobacco	Cotton
Fish	Machinery
Hard Tack and Wheat	Petroleum
Rice	Automobiles
Naval stores	Packing House Products
Indigo	Iron and steel
Whale oil and bone	Wheat and flour
Deerskins and furs	Copper
Pig and bar iron	Tobacco
Pot and pearl ashes	Fruits and nuts
Pickled beef and pork	Manufactured cotton
Horses	Saw mill products

Settlement of America was coincident with the rise of England to naval supremacy, so Britain looked to her new colonies to relieve her of the necessity of buying ship timber, masts and naval stores from the countries around the Baltic. All white pine in New England larger than 2 feet in diameter was reserved for masts for the King's navy. In those days single masts were used, and American trade has no more thrilling chapter than the cutting and trimming of white pine masts, some of which were 120 feet long. Seventy to eighty yoke of oxen pulled these prize logs to the sea, and so great was the task of getting eighty yoke of oxen started that the animals were never allowed to stop until they reached the shore. If a beast faltered it was instantly cut out.

When One-Third of England's Ships were "Made in America"

Beginning with the building of the *Blessing of the Bay* at Plymouth in 1631, shipbuilding became the outstanding, highly technical manufacture for export. When the Revolutionary War opened one-third the ships sailing under the English flag had been made in America.

Fish, rum, slaves and tobacco figured in a curiously complicated early export and import trade. Codfish caught by Boston and Salem fishermen on the Newfoundland Banks were traded in the West Indies for molasses. The molasses was converted into rum at such places as Newport, where there were seventeen distilleries, and the rum traded in Africa for slaves. Slaves were then sold to southern planters for hard cash obtained from tobacco marketed in England.

Building of clipper ships eventually brought China and India into the United States' export market. A little village in New Hampshire might make augers which were readily traded in China for tea. Exporters of American electric refrigerators to-day must bow with respect before their predecessor of a century ago, a New England adventurer who took loads of ice, cut on Thoreau's Walden Pond, to India.

The characteristic features of the United States' modern export trade are products of its inventive genius; sewing machines, safety razors, cash registers, automobiles, automatic vending machines and phonographs. Clocks were pioneers of this trade. Connecticut craftsmen had long been famous for wooden-works clocks, but their products could not be exported because wooden parts warped in sea air. With the invention of stamping machines about 1840 brass parts were substituted for wooden parts, and by 1843 one company had sold 40,000 clocks in foreign countries.

American exports in three centuries have had a remarkable growth: 1730—$7,000,000 (approximately); 1830—$71,671,000; 1930—$5,157,000,000.